

HIREx: A Java-Based Information Resource Publishing System for the World Wide Web

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Traditional methods for publishing inventories of information on the World Wide Web (WWW) using HTML-encoded text files become increasingly difficult to manage as the content, complexity, and volatility of these inventories increase. The Health Information Resource Executive (HIREx) is an inventory publishing system developed at the McMaster University Health Information Research Unit to address this problem. HIREx is deployed successfully for a number of health organizations.

Presently, the HIREx system has three components: 1) HIREx Viewer, a Java-applet which permits browsing and searching of HIREx inventories by any Java-enabled WWW-browser, 2) HIREx Administrator, which allows users to edit and manipulate HIREx data, and 3) HIREx Server, which enables publication of HIREx data on the WWW.

HIREx stores information in a standardized, object-based table structure that can be implemented on any relational database management system. The data-object specification is easily adaptable, adopting a plug-in model which allows new "classes" of data-objects to be added as needed. The specification includes standards for transfer of information between HIREx and other software systems.

In HIREx Databooks, data-objects are defined for Entities (People, Organizations, etc.) and Products (Scientific Papers, software, databases, WWW documents, etc.). Using the HIREx Administrator, users can enter information about Entities and Products and they can create relationships between all HIREx data-objects. HIREx Administrator also provides management tools to set security and restrict access to sensitive or confidential data, as well as functions to import and export data-objects between HIREx Databooks and other data sources such as Research Information Systems' Reference Manager.

The HIREx Viewer is a small-footprint Java-applet that is sent to the client upon connecting to a HIREx server. This applet is activated within the client's Web-browser, allowing the user to peruse and search any published HIREx inventory. The Viewer interface closely parallels that of HIREx Administrator - using

index-tabbed views for Entity, Product and Relationship information. The Relationship tab is the default view. It presents the data in a collapsible hierarchical tree which allows the user to quickly see, for example, a researcher and her associated publications. It allows grouping of like Entities by using "Folders" as the top-level container for all HIREx data-objects.

The HIREx Server is the publishing "engine" of the HIREx system. It is a small, optimized application built to interface with the HTTP server and the RDMS on the host system, with the HTTP server handling security for each session. HIREx Server sends the requested information fetched from the RDMS in a formatted HTML file via the host HTTP server back to the client. This HTML file can be viewed within the HIREx Viewer applet, where it is formatted within the Viewer interface, or it can be returned as a solitary HTML page within any conventional web-browser. The latter is accomplished if the source WWW hyperlink references a "HIREx URL." This is an add-on to the standard URL convention which allows webmasters to create direct (go straight to destination file) or indirect (present HIREx data about destination together with conventional URL hyperlink) links to HIREx Databook entries. If WWW locating or descriptive information about an Entity or Product changes, the webmaster simply changes the HIREx entry and all WWW links remain intact. WWW users have increasing confidence in the retrieved data (authenticated), and WWW providers have better control over their webspace. Preliminary testing shows that the response times of our in-house system rivals if not surpasses traditional HTML systems.

HIREx allows organizations and businesses to maintain and publish inventories on the Intra/Internet within one integrated system that, by virtue of its Java technology, runs on all Java-enabled platforms. HIREx is used by the Cochrane Collaboration and other organizations. Future plans include consolidation of the HIREx Viewer and Administrator into a single, rights-dependent applet.

<http://hiru.mcmaster.ca/cgi/hirexs.exe?START=hiru>